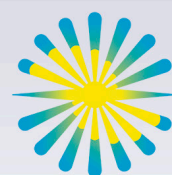




3RD - 7TH

FEBRUARY 2025

V THEORETICAL-PRACTICAL SCHOOL
ON FLUORESCENCE AND LASER
FLASH PHOTOLYSIS TECHNIQUES



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CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS



UNIVERSITAT
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HR EXCELLENCE IN RESEARCH

SCOPE

This school is aimed at doctoral students and postdoctoral researchers who want to acquire theoretical and practical knowledge in a technique with great potential for the elucidation of reaction mechanisms.

GOALS

The main objective of this School is to show the potential of fluorescence and laser flash photolysis techniques to investigate different reaction mechanisms, both photophysical and photochemical.

Specific objectives:

To understand experiments based on the fluorescence technique

To understand experiments based on the laser flash photolysis technique

To understand experiments based on fluorescence and laser flash photolysis techniques in the solid state

To discuss the mechanisms based on fluorescence and laser flash photolysis experiments described in the literature

SCHOOL INSTRUCTORS

Dr. Francisco Boscá, Research Scientist (ITQ)

Dr. Virginie Lhiaubet, Tenured Scientist (ITQ)

Dr. Pedro E. Atienzar, Tenured Scientist (ITQ)

Dr. M. Luisa Marín, Full Professor (UPV)

MONDAY, February 3rd

9:00-9:15

Registration

9:15-10:00

Introduction to the School, Dr. M. Luisa Marín

10:05-11:00

Unit 1. Introduction to Fluorescence and Laser Flash Photolysis Techniques, Dr. M. Luisa Marín

11:00-11:25

COFFEE BREAK

11:30-12:30

Unit 2. Basic Concepts for Operating Fluorescence Equipment, Dr. Virginie Lhiaubet

12:30-13:30

Unit 3. Basic Concepts for Operating Laser Flash Photolysis Equipment, Dr. Francisco Boscá

13:30-14:30

Unit 4. Basic Concepts for Operating Fluorescence and Laser Flash Photolysis Equipment with Solid Samples, Dr. Pedro E. Atienzar

14:30-16:00

LUNCH

16:00-19:00

Student and Faculty Teachers Flash Presentations

Welcome reception.

TUESDAY, February 4th

9:00-10:00

Unit 5. Review of Kinetic and Thermodynamic Concepts in Fast Processes, Dr. M. Luisa Marín

10:00-11:00

Unit 6. Characterization of Excited States: The Singlet Excited State, Dr. Virginie Lhiaubet

11:00-11:25

COFFEE BREAK

11:30-14:30

- **Group 1:** Practical Session 5. Detection of Triplet Excited States, Dr. Francisco Boscá
- **Group 2:** Practical Session 1. Measurement of Emission Spectra, Lifetimes, and Time-Resolved Spectra, Dr. Virginie Lhiaubet
- **Group 3:** Practical Session 7. Data Processing and Graphical Representation, Dr. Pedro E. Atienzar

14:30-16:00

LUNCH

16:00-19:00

- **Group 1:** Practical Session 6. Detection of Organic Radicals, Dr. Francisco Boscá
- **Group 2:** Practical Session 7. Data Processing and Graphical Representation, Dr. Pedro E. Atienzar
- **Group 3:** Practical Session 1. Measurement of Emission Spectra, Lifetimes, and Time-Resolved Spectra, Dr. Virginie Lhiaubet.

WEDNESDAY, February 5th

9:00-11:00

Unit 7. Characterization of Excited States: The Triplet Excited State, Dr. M. Luisa Marín.

11:00-11:25

COFFEE BREAK

11:30-14:30

- **Group 1:** Practical Session 7. Data Processing and Graphical Representation, Dr. Pedro E. Atienzar.
- **Group 2:** Practical Session 5. Detection of Triplet Excited States, Dr. Francisco Boscá.
- **Group 3:** Practical Session 2. Low-Temperature Measurements, Determination of Quantum Yields, Solid-State Measurements, Dr. Virginie Lhiaubet.

14:30-16:00

LUNCH

16:00-19:00

- **Group 1:** Practical Session 1. Measurement of Emission Spectra, Lifetimes, and Time-Resolved Spectra, Dr. Virginie Lhiaubet.
- **Group 2:** Practical Session 6. Detection of Organic Radicals, Dr. Francisco Boscá.
- **Group 3:** Practical Session 3. Use of Optical Microscope in Fluorescence Emission and Imaging Measurements. Nanosecond Lifetimes, Dr. Pedro E. Atienzar.

THURSDAY, February 6th

9:00-10:00

Unit 8. Characterization of Other Reaction Intermediates, Dr. M. Luisa Marín.

10:00-11:00

Practical Session 8. Demonstration of Femtosecond-Scale Transient Absorption Technique, Dr. Francisco Boscá.

11:00-11:25

COFFEE BREAK

11:30-14:30

- **Group 1:** Practical Session 3. Use of Optical Microscope in Fluorescence Emission and Imaging Measurements. Nanosecond Lifetimes, Dr. Pedro E. Atienzar.
- **Group 2:** Practical Session 2. Low-Temperature Measurements, Determination of Quantum Yields, Solid-State Measurements, Dr. Virginie Lhiaubet.
- **Group 3:** Practical Session 5. Detection of Triplet Excited States, Dr. Francisco Boscá.

14:30-16:00

LUNCH

16:00-17:00

Unit 9. Spectroscopic Characterization in the Solid State. Fluorescence and Laser Flash Photolysis, Dr. Pedro E. Atienzar

17:00-20:00

- **Group 1:** Practical Session 2. Low-Temperature Measurements, Determination of Quantum Yields, Solid-State Measurements, Dr. Virginie Lhiaubet.
- **Group 2:** Practical Session 3. Use of Optical Microscope in Fluorescence Emission and Imaging Measurements. Nanosecond Lifetimes, Dr. Pedro E. Atienzar.
- **Group 3:** Practical Session 6. Detection of Organic Radicals, Dr. Francisco Boscá.

FRIDAY, February 7th

9:00-11:00

- **Group 1:** Practical Session 4. Measurement of Emission Spectra, Lifetimes, and Mapping Using Microscope Adapted to Fluorescence Equipment, Dr. Pedro E. Atienzar.
- **Groups 2 + 3:** Practical Session 9. Processing and Graphical Representation of Real Data Collected During Practical Sessions, Dr. Virginie Lhiaubet, Dr. Francisco Boscá, Dr. M. Luisa Marín.

11:00-11:25

COFFEE BREAK

11:30-12:30

Unit 10. Practical Considerations in Laser Flash Photolysis Experiments, Dr. Francisco Boscá.

12:30-14:30

- **Group 2:** Practical Session 4. Measurement of Emission Spectra, Lifetimes, and Mapping Using Microscope Adapted to Fluorescence Equipment, Dr. Pedro E. Atienzar.
- **Groups 1 + 3:** Practical Session 9. Processing and Graphical Representation of Real Data Collected During Practical Sessions, Dr. Virginie Lhiaubet, Dr. Francisco Boscá, Dr. M. Luisa Marín.

14:30-16:00

LUNCH

16:00-18:00

- **Group 3:** Practical Session 4. Measurement of Emission Spectra, Lifetimes, and Mapping Using Microscope Adapted to Fluorescence Equipment, Dr. Pedro E. Atienzar.
- **Groups 1 + 2:** Practical Session 9. Processing and Graphical Representation of Real Data Collected During Practical Sessions, Dr. Virginie Lhiaubet, Dr. Francisco Boscá, Dr. M. Luisa Marín.

18:00


Farewell

NOTES



 **LASING**

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